

# Subject Index

(Page numbers followed by *n* indicate reference notes; those followed by *t* indicate tables; those in *italics* indicate material in discussion.)

**A**cademy of Health Sciences, 134  
 Acheson, Dean, 58  
 Accountability, 104, 105, *See also* Ethical issues; Responsibility  
 Ad Hoc Group of Governmental Experts, 125-126  
 Ad Hoc Group on Biomedical Research, 200  
*Aedes albopictus*, 149-150  
 AIDS, 117-118, 150  
     international programs, 151, 167, 169, 170  
 Akimoto Sueno, 36  
 Allegations of biological warfare, *See* Biological warfare allegations  
 Allergan, 221  
 American Association for the Advancement of Science (AAAS), 235-236, 239  
 American Association of Medical Colleges, 235  
 American Chemical Society (ACS), 236  
 American Institute of Biological Scientists, 193, 235  
 Amherst, Jeffrey, 11-12  
 American Society for Microbiology (ASM), xiii, 191, 193, 230-239  
     Advisory Committee, 231, 232  
     Archives, 234  
     Code of Ethics, 194, 233  
     Committee on Ethical Practices, 237  
     Public and Scientific Affairs Board, 194, 200, 230, 233-235  
     resolution on biological warfare, 232, 233  
     War Committee on Bacteriology, 231  
 Anda, 32  
 Anthrax, 82, 151, 196, *See also* *Bacillus anthracis*  
     in Sverdlovsk, 15-16, 72, 118, 129, 142, 169, 193  
     toxins, 133  
     use during WWII, 13, 23, 29, 32, 33  
     vaccine, 116, 197, 222, 227

Antibiotic resistance, 150, 191  
 Antiviral compounds, 208  
 Arboviruses, 209  
 Arenaviridae, 148*t*  
 Argentine hemorrhagic fever, 148*t*, 212  
 Armed Forces Epidemiological Board, 189  
 Armed Forces Medical Intelligence Center, 134  
 Army Biological Laboratories Advisory Committee, 193  
 Army Chemical Corps, 231, *See also* Chemical Warfare Service  
 Army Medical Research and Development Command (AMRDC), 165  
 Army Science Board, 189  
 Arthropod vectors, 57, 148*t*, 206, 208, 214  
 Article I, *See* BWC Article I  
 Article V, *See* BWC Article V  
 Article X, *See* BWC Article X

**B***acillus anthracis*, ix, 79*n*, 183, *See also* Anthrax  
*Bacillus globigii*, 14  
 Bacon, Francis, 91  
*Bacterium tularense* (tularemia), 79*n*  
 Baldwin, Ira L., 192  
 Banting, Frederick, 192  
 Baylor University, 221  
 Bayne-Jones, Stanhope, 191  
 Bee feces, 73, 130, 188  
 Beiyinhe, 24-25  
 Bernstein, B.J., 177, 185*n*  
 Best, Charles, 192  
 Biofocus Foundation, 6-7  
 Biological arms control, 1-8  
 Biological defense and industry, 219-229  
 Biological Defense Research Program, 131-145, 179-180, 195, 204, 235  
     and ethics, 100-103, 110  
     intent, xi, 115-116

- Biological Hazards Early Warning Program (BHP), 146-176  
 funding, 163-165  
 legal basis, 156-158  
 operation, 158-163  
 purpose, 146
- Biological Threat Analysis Center, 165
- Biological threats of natural origin, 147-151
- Biological warfare  
 agents, xi, 114, 132, 160t, 181  
 attraction for poor nations, 2, 17, 21, 171  
 Cold War concern over, 40-41  
 history, 9-20
- Biological warfare allegations, 53-54, 73 during WWI, 13  
 in Korean War, 54-58, 62, 231  
 in Laos, 72-73, 118-119, 142  
 investigation, 56, 62, 168
- Biological Warfare Committee (WBC), 191
- Biological warfare delivery systems, *See* Delivery systems
- Biological warfare policy, 15, 43, 63-70, 179  
 ASM role in, 230, 233  
 under Nixon, xii, 178, 195
- Biological warfare research (BWR), xii, 181  
 civilian control, 191-201  
 from 1940 to 1969, 14-15, 177-178  
 intent, 101-104, 133, 134  
 justification, 36-38, 95-97, 232
- Biological warfare research in Japan, *See* Japanese WWII biological warfare research
- Biological weapon systems, 151, 152
- Biological weapons  
 characteristics, 184-185  
 purposes, 135-138
- Biological Weapons Anti-Terrorism Act, 234
- Biological Weapons Convention (BWC), xii, 7-8, 15, 43, 111-112, 220,  
*See also* BWC review conferences  
 and BDRP, 134  
 and "whistle-blower's fund," 233-234  
 Article I, 114, 131, 134-140, 179  
 Article V, 118, 122, 126  
 Article X, 126, 164  
 implementation, 5, 140, 155-157  
 provisions, 121, 179  
 Article XV, 136  
 funding, 164  
 description, xi, 131  
 intent, 153  
 illegal activities under, 115t  
 prohibitions, 131, 134, 135, 138, 139, 181  
 relevance to research, 113-130  
 U.S. compliance, 15, 178-180, 195  
 verification problems, 3, 116-119, 154-155, 193  
 verification protocol, 115t, 118-120, 124, 125, 140-141  
 violations alleged, 72, 118-119  
 weaknesses, 114-116, 118, 119, 155
- Biological weapons research, *See* Biological warfare research
- Biotechnological advances, *See* Modern biotechnological advances
- Blepharospasm, 221, 227
- Board of Public Affairs of the ASM, 194, 200
- Bolivian hemorrhagic fever, 148t, 221-222
- Botulinum toxin, 79n, 183, 221
- Botulinum vaccine, 226
- Bouquet, Henry, 11-12
- Boycott of biological warfare research, 43
- Boyle, Francis A., 132
- Boyle, Robert, 92
- Bradley, Omar N., 64
- Brandt, Karl, 93, 97
- Browne, Thomas, 91-92, 98n
- Brucella suis*, 68, 82
- Bunyaviridae, 148t
- Bush, George, 43, 234
- BWC review conferences, 15-16, 113, 117, 195  
 RC1 (First Review Conference), 16, 117, 118  
 RC2 (Second Review Conference)  
 confidence-building measures, 119-127, 155, 169, 180, 185  
 contact among researchers, 154, 179, 184  
 data exchange, 120, 123, 140, 154, 179, 184, 195  
 Final Declaration, 114, 120, 122, 179  
 publication of research, 121, 154, 179, 184  
 RC3 (Third Review Conference), 120, 122-127, 154-158  
 RC4 (Fourth Review Conference), 125
- Camp Detrick, 14, 177, 192, *See also* Fort Detrick
- Cancer, 221
- Capillariasis, 167

- Cataracts, 221  
 Cell-state theory (*Zellenstaat* theory), 93, 96  
 Celsus, 91, 98n  
 Center for Infectious Diseases (CID), 196, 197  
 Center for the History of Microbiology, 234  
 Centers for Disease Control, 165, 196, 203, 206, 218  
 Central Intelligence Agency, 131  
 Centre for Applied Microbiology and Research (CAMR), 219, 221, 226  
 Changchun, 27-28, 33  
 Chemical Warfare Service, 63, 177, 191  
 Chemical Weapons Convention, 127n  
 Chikungunya virus vaccine, 212  
 Chinese People's Commission for Investigating the Germ Warfare Crime of American Imperialists, 56  
 Cholera, 151, 167, 168  
   in WWII Japanese BWR, 25, 30, 33, 34  
 Chou En-Lai, 55, 56  
 Civilian oversight, xii, 110, 168, 191, 195-199  
 Clendenin, R.M., 177, 186n  
 Cloning, 187, 192, 214, 215  
 Cole, Leonard A., 43  
 Collis, J.R., 192  
 Commission of the International Association of Democratic Lawyers, 56  
 Committee for Responsible Genetics, 100, 101  
 Committee on Biological Warfare, 63  
 Committee on Information Concerning Civil Defense Against Biological Warfare, 231  
 Committee on the Military Use of Biological Research, 220  
*Compositiones Medicamentorum* (Scribonius Largus), 91, 98n  
 Compton, Karl T., 63  
 Conference on Bacteriological Warfare, 232  
 Conspiracy of Pontiac and the Indian War After the Conquest of Canada, *The* (Parkman, F.), 11, 18n  
 Council for Responsible Genetics, 116  
*Coxiella burnetii* (Q fever) 79n, 183  
 Defense Science Board, 189  
 Defensive biological research, xi-xii, 95, 96, 181  
 Defensive purposes, 136-137  
 Delivery systems, 133, 151, 152  
   ineffectiveness of, 68, 103-104  
   pre-WWI, 10-12  
   prohibited, 137-138  
   used by WWII Japanese BWR, 28, 32-34  
 Dengue, 133, 148t, 149, 212  
   and NMRU, 167  
   type 4, 214  
   vector, 149  
 Department of Commerce, 228, 235  
 Department of Defense (DoD), 139, 197  
   field testing, 209  
   funding, xiii, 198, 199, 210  
   human experiments, 209  
   investigators, 202-218  
   open research, 203, 216  
   research programs, 131-134, 202-218  
   secrecy, 141  
   "threat list", 180, 197, 203-204, 208  
 Desert Storm, 1, 104, 171, 191, 235  
 Detection, 151-153, 191, 222  
 Deterrence, 96, 132, 134-136, 177, 215  
 Diagnostic technology development, 205  
 Disease outbreaks, 169, 203, 206  
   investigation, 146, 203-204  
   reporting, 120, 125, 154, 158  
 Diseases used in Japanese WWII BWR, 30, *See also* Japanese WWII BWR  
 Draft Programmatic Environmental Impact Statement (DEIS), 132  
 Dugway Proving Grounds, 16  
 Dysport, 221, 227  
 Dystonias, 221  
 Ebola fever, 205  
 Eighteen Nation Disarmament Committee, 119  
 ELISA diagnostics, 168  
 Emerging viruses, 147, 148t  
 Enhanced Proliferation Control Act, 3  
 Environment Impact Statement (EIS), 195  
 Epidemiological Intelligence Service, 165  
 Epidemiological surveillance, 158  
 Equine encephalomyelitis, 133  
 Erythropoietin, 163  
 Essay Concerning Human Understanding, *An* (Locke), 92
- D**alrymple, Joel M., ix-x  
 Davies, Thomas D. 136  
*De Medicina* (Celsus), 91, 98n

- Ethical issues, xiii, 6, 95, 180, *See also*  
 Accountability; Responsibility  
 of biological defense research, 100-111,  
 220-222  
 of biological warfare, xv, 84-87  
 of human experimentation, 22  
 role of scientific societies in, 230, 236-  
 237, 239
- Ethical utilitarianism, 86
- Ethics, 85  
 and WWI Japanese BWR, 35-40  
 ASM code, 194, 233  
 life-sciences liberalism, 94-95  
 of secrecy, 97  
 standards, 97  
 traditions, 90-93, 96
- Eugenics movement, 93, 97
- Exchange of data, 120, 123, 233, *See also*  
 BWC RC2
- Export control, 191, 223, 224, 228, 229,  
 235

- F**DA, 190, 209
- Feces, bee, 73, 130, 188
- Federation of American Scientists (FAS),  
 122, 124, 128n, 141, 236
- Federation of American Societies for Ex-  
 perimental Biology, 235
- Field testing, 152  
 Canadian, 14  
 Japanese, 32-35  
 recommended by Stevenson Commit-  
 tee, 65  
 U.K., 14  
 U.S., 14, 15, 68, 80n  
 vaccine, 209-210
- Filoviridae, 148t
- Final Programmatic Environmental Im-  
 pact Statement (FEIS), 132, 139
- First Review Conference of BWC, *See*  
 BWC RC1
- Fischer, Georges, 140
- Flaviviridae, 148t, 214
- Fogarty International Center, 147
- Formalin, 211
- Forrestal, James, 63
- Fort Detrick, 120, 230  
 ASM Advisory Committee, 193, 231  
 field tests, 80n  
 investigation of Japanese BWR, 41, 50  
 USAMRIID, 180  
 vaccine development, 196
- Foundation for Economic Trends, 233-  
 234
- Fourth International Congress on Mi-  
 crobiology, 231

- Fred, Edwin B., 191
- Frisina, Michael, 104
- Frostbite, 26, 30, 32
- Future of Biological Disarmament, The*  
 (ter Haar), 114, 127n
- FY 1992 Department of Defense Author-  
 ization Bill, 235

- G**eneral Accounting Office, 116, 133-  
 134, 198, 204
- Genetic engineering, 150, *See also* Mod-  
 ern biotechnological advances  
 for vaccine development, ix, 213-215  
 potential for biological warfare, 117,  
 133, 152, 153, 234
- Geneva Convention, 13, 23
- Geneva Protocol, 23, 77n, 113, 114, 153  
 alleged violation of, 118-119, 128-129  
 limitations, 113, 135, 139  
 prohibitions, 13, 21, 131  
 ratified by Japan, 43n  
 ratified by U.S., 13, 236  
 U.S. failure to ratify, 14, 60, 61, 63,  
 71, 74  
 "whistle-blower's fund" for, 233-234
- Glanders, 13, 25, 29, 30, 32
- Glenn, John H., 116, 133, 198
- Global Program on AIDS, 170
- Government funding, 105
- Government regulations, 223-224, 228
- Green Cross Company, 37
- Greey, P., 192
- Grmek, M.D., 147, 173n
- Gross, Ernest A., 60
- Group A meningococcal meningitis, 168

- H**aftendorn, Helga, 169-170, 176n
- Hagen, William, 191
- Haig, Alexander, 73, 119
- Halvorson, Harlyn O., 189, 200, 204,  
 233, 234
- Hansen, Lynn, 193
- Hantaan virus, ix, 148t
- Harbin, 24
- Haskins, Carl, 66
- Haskins Report, 81n
- Hedén, Carl-Göran, 155
- Hemorrhagic fever, 148t, 212, 221-222
- Hill, Edwin V., 41
- Hippocratic Oath, 91
- History of biological warfare, *See* Biolog-  
 ical warfare history
- Hobbes, Thomas, 92, 98n
- Hojo Enryo, 36
- Hosts, 148t, *See also* Vectors

- Human experimentation  
 alleged in Korean War, 56  
 by Department of Defense, 209  
 by Japan, 14, 21-43  
 ethics of, 22
- Human growth hormone, 163
- Human Immunodeficiency Virus (HIV),  
 148t, 150, 167
- Hunan province, 34
- Hungate, R.E., 232-233
- Huxsoll, David, 222
- I**mmunodefenses, 149
- Immunosuppression, 150
- Inactivated vaccines, 211
- Individual welfare, 91, 93, 95-97
- Industry control measures, 225-228
- Infectious agent characterization, 205-208
- Infectious disease research, 206-208
- Infectious clone vaccines, 214-215
- Influenza virus, 148t, 150
- Intent  
 of BWC, 135, 153  
 of possession of offensive agents, 133, 135  
 of research, xi, xii, 106, 116-117, 181, 184  
 unclear, 169
- International Association of Microbiological Societies, 8, 232
- International Committee of the Red Cross, 58, 59, 61
- International Council of Scientific Unions, 156, 239
- International Scientific Commission, 56, 57
- International security, 168-170, 225-228
- International Union of Microbiological Societies, 200
- Iraq, 43, 104, 153, 227, *See also* Persian Gulf War
- Ishii Shiro, 22-26, 35, 44n  
 ethics of, 36  
 field testing by, 28, 33-34  
 U.S. investigation of, 41, 50
- Ishii Unit, 27-29, 33-34, 37
- J**apanese nationalism, 38-39
- Japanese WWII biological warfare research, 16, 21-52, *See also* Human experimentation
- delivery systems, 104
- facilities, 24-32
- investigation, 41

- justification, 36-37, 40  
 U.S. cover-up, 39, 42, 51, 60, 71, 74
- Joliot-Curie, M. Frederic, 231
- JRH Biosciences, 219
- Junin (Argentine hemorrhagic fever),  
 148t, 212
- K**ano Masaji, 35
- Kaplan, M., 123, 128n
- Kawashima Kiyoshi, 31
- King, Jonathan, 101, 106-107
- Kitano Masaji, 29, 37, 41, 45n, 50
- Koizumi Chikahiko, 22-23
- Kunkel, Louis, 191
- Kwantung Army Antepizootic Protection of Horses Unit, 27-28, 33, 37
- Kyasanur Forest, 148t

- L**assa fever, 148t, 205, 221
- Legionella pneumophila* (Legionnaire's disease), 149
- Leishmaniasis, 166
- Leonard, James, 193
- Letter on Toleration* (Locke), 92
- Leviathan* (Hobbes), 92, 98n
- LH fermentation, 219
- Lie, Trygve, 58, 62
- Life-sciences liberalism, 88-99
- Live attenuated vaccines, 211, 214
- Locke, John, 92-93
- Lovett, Robert A., 66, 68
- Luria, Salvador, 193
- Lwoff, Andre, 232

- M**-1000 Committee, 192
- MacArthur, Douglas, 83
- Machupo (Bolivian hemorrhagic fever),  
 148t, 221-222
- Malaria, 166
- Malik, Jacob, 59-61, 63, 71
- Manchurian experiments, 24-29
- Marburg fever, 148t, 205
- Masuda Tomasuda, 29, 41
- Masuda Yoshiyasu, 38
- McNeill, W.H., 147, 173n
- Measles, 147, 149
- Merck, George W., 192
- Merton, Robert, 105
- Meselson, Matthew  
 on openness, xiii, xviin, 194, 198  
 on BWC RC3, 123, 128n  
 on "yellow rain," 73, 130, 188
- Michigan Department of Public Health,  
 197

Mill, John Stuart, 86  
 Modern biotechnological advances, *See*  
   *also* Genetic engineering  
   attraction for terrorists, 5  
   effect on bioweaponry, 88-89, 101-  
     102, 107-108, 117  
   peaceful applications, 5-6, 192-193,  
     208, 215  
 Molecular biology, 184, 213  
 Mokulsky, M., 123, 128*n*  
 Monkeypox, 148*t*  
 Moss, Bernard, 213  
 Mukden (Shenyang), 29  
 Murray, E.G., 192  
 Mycotoxins, 73, 119, 130

**N**aito Ryiochi, 37, 40, 41  
 Nanking, 29, 33  
 National Academy of Sciences, 177, 191,  
   198  
 National Cancer Institute, 177  
 National Institute of Allergy and In-  
   fectious Diseases (NIAID), 147,  
   196  
 National Institutes of Health (NIH), 147,  
   189, 190, 196  
   Consensus Conference, 221  
   peer review, 198  
   research programs, 211, 213  
 National Security Council (NSC), 70  
 National Security Decision Memorandum  
   35, 178  
 National Security Decision Memorandum  
   44, 178  
 Nationalism, 38-39, 96  
 Natural hosts, 148*t*. *See also* Vectors  
 Navy Medical Research and Development  
   Command (NMRDC), 147,  
   165-168  
 Naval Medical Research Institute  
   (NMRI), 165  
 Naval Medical Research Units (NMRUs),  
   163, 166-167, 166*t*  
 Ning Bo, 34, 49  
 Nixon, Richard  
   ban of biological warfare weapons, 15,  
     178, 193  
   speech to U.N. Committee on Dis-  
     armament, 140  
 Nomonhan incident, 28, 33, 49  
 Non Gan county field test, 34  
 NSC 5062/1, 69  
 NSC 62 (CEBAR), 63-64, 69, 70  
 Nuremberg trials, 41, 93, 97  
 N.Y.S. Health Laboratories, 213

**O**ffice of Naval Research, 198  
 On-site inspections, 120, 124, 125, 141,  
   194  
 O'nyong-nyong, 148*t*  
 Openness, xii-xiv, 179, 180, 194  
   in research, 193-195, 203-204, 210,  
     226-228, 232  
   in publication, xii, 154, 168, 194, 233  
 Oropouche, 148*t*  
 Orthomyxoviridae, 148*t*  
 Osler, William, 93  
 Oversight, civilian, xii, 110, 168, 191,  
   195-199

**P**ak Hen Yen, 55  
 Pan-American Health Organization, 218  
 Paoletti, Enzo, 213  
 Parkman, Francis, 11, 18*n*  
 Pasteurella pestis (plague), 79*n*  
 Peer review, 198, 199, 231  
 Peptides, 117  
 Persian Gulf War, 1, 104, 171, 191,  
   235  
 Physicians for Human Rights, 239  
 Pine Bluff, 67  
 Ping Fan, 26-27, 35, 36, 38  
 Plague, 25, 29, 30, 32, 34, 167  
 Plasmids, 150  
 Pledge by scientists, 100-101  
 Polio type 3 vaccine, 214  
 Polyvalent chimeric RNA virus vaccines,  
   215  
 Porton International Inc., 219, 220 (fig.)  
   policy, 222-223  
 Poxviridae, 148*t*  
 Prions, 117-118  
 Public and Scientific Affairs Board  
   (PSAB), 194, 200, 230, 233-235  
 Public Health Service, 196

**R**apid diagnosis of infectious agents,  
   207  
 Reagan, Ronald, 73, 132  
 Reagan administration, 43, 142  
 Recombinant DNA technology, 192, 195,  
   *See also* Genetic engineering  
 Recombinant vaccinia viruses, 213-214  
 Reed, G.R., 192  
 Regulatory controls, 209, 223-224, 228  
 Religio Medici (Browne), 91-92, 98*n*  
 Research and Development Board, 63  
 Responsibility, 6, 97, 106, 194, *See also*  
   Accountability; Ethical Issues  
 Retroviridae, 148*t*

Review conferences of BWC, *See* BWC

Review Conferences

Ricin-conjugated antibodies, 221

Ridgway, Matthew B., 55, 58

Rifkin, Jeremy, 233-234

Rift Valley fever virus, ix, 148t, 215

Rivers, Thomas, 191

RNA viruses, 148t

Rocio, 148t

Rockefeller University, 147

Roosevelt, Franklin D., 33, 63

Rousseau, Jean-Jacques, 92, 98n

**S**alk Institute, 120

*Salmonella*, 168

San Francisco field tests, 80n

Sanders, Murray, 41

Schistosomiasis, 167, 168

Schweitzer, Albert, 93

Scientific societies, 230-238

Scribonius Largus, 91, 97, 98n

Second Review Conference of BWC, *See*  
BWC RC2

Secrecy, 191, 193, 194

and ethics, 97

and national security, xiv

Department of Defense, 141-142

in Warsaw Pact nations, 155

Japanese WWII biological warfare re-  
search, 24-27, 29-30, 35, 38

Senate Governmental Affairs Committee,  
116

Seoul virus, 148t

*Serratia marcescens*, 14

Sherman, Morgan, 191

Shigellosis, 151

Sigma Xi, 239

Simulants, 186

Sindbis virus, 148t, 214, 215

Singapore, 40

SIPRI study, 7-8

Smallpox

and Native Americans, 11-12, 149  
vaccine, 212

WHO program, 151, 169, 170

Snyder, Merrill, 232

Social Darwinism, 93, 97

Social welfare, 91, 93, 96-97, 106

Songo Fever (epidemic hemorrhagic  
fever), 30, 37

Specificity, 88, 107

Stevenson, Earl, 63

Stevenson Committee, 63-66

Stevenson Report, 66, 68

Stimson, Henry L., 177, 191

Sverdlovsk, U.S.S.R., 15, 16, 72, 118,  
119, 129, 142, 169, 193

Swedish symposium, 179

Sydenham, Thomas, 92

Sylvester, Arthur, 141

Syphilis, 147

**T**aliaferro, W.H., 191

Tama Unit (Unit Ei-1644), 29-30, 33

Technology transfer, 198

Tenth International Congress of Mi-  
crobiology, 232

Ter Haar, 114, 116, 123, 124, 127n

Third Review Conference of BWC, *See*  
BWC RC3

Thompson, Arvo, 41, 50

Threat list, *See* DoD "threat list"

Thymidine kinase (tk) gene, 213

Tick encephalitis, 30, 31, 37

Togaviridae, 148t, 214

Togo Unit, 24-26

Tokyo Army Medical School Department  
of Immunology, 23

Torticollis, 221

Toxins, 117, 221

control of, 114, 127n, 178, 227

Transparency, *See* Openness

Tricothecene, 119

Truman, Harry S., 14, 63-64, 165

Tsuneishi Kei'ichi, 40, 44n

Tuberculosis, 30, 31, 37

Tularemia, 79n

*Two Treatises of Government* (Locke), 92

Typhoid fever, 29-31, 33, 34, 151

Typhus, 25, 30, 33, 34

**U**.K. Department of Health, 219

U.K. Ministry of Defense, 219

U.N., 77n, 118, 140

Committee on Disarmament, 140

Disarmament Commission, 58-60

Unit 100, 27-28, 33, 37

Unit 731, 27-29, 33, 34, 37

Unit Ei-1644 (Tama Unit), 29-30, 33

U.S. Arms Control and Disarmament  
Agency, 136

U.S. Army Health Services Command,  
177

U.S. Army Medical Research and Devel-  
opment Command, 132, 139

U.S. Army Medical Research Institute for  
Infectious Diseases (USAM-  
RIID), 165, 180, 186, 202-204,  
206, 210

USDA, 189

**V**accine development, ix, 125, 196,  
210, 213  
  against biological warfare agents, ix,  
  102, 106-107, 115-116  
  Biological Defense Research Program,  
  133, 186-187  
  Department of Defense-funded, 202-  
  218  
Vaccines, 191, 211, 212, 214, 226 (fig.),  
227  
Vaccinia virus, ix, 212-214  
Validated warfare agents, 235  
Vandenberg, Hoyt S., 66  
Vectors, 57, 83, 148*t*, 149, *See also* Hosts  
  arthropod, 57, 148*t*, 206, 208, 214  
Vella, E.E., 147, 173*n*  
Venezuelan equine encephalitis, 212,  
214, 221  
Verification, 194, *See also* BWC  
  verification problems; BWC  
  verification protocol  
Vienna Convention on the Law of Trea-  
ties, 137

**W**akamatsu Unit, 27-28, 33, 37  
Wakamatsu Yujiro, 27, 28, 41

Walter Reed Army Institute of Research,  
165  
War Research Service, 177  
Western equine encephalitis virus, 150  
"Whistle-blowers' fund," 233-234  
Work-of-mercy standard, 97  
World Academy of Art and Science, 6  
World Health Organization, 170, 217-  
218  
  and AIDS, 151  
  assistance offered, 62  
  proposed functions, 140, 164-165  
World Peace Council, 231

**Y**ellow fever, 148*t*, 149, 212, 214  
"Yellow rain," 72-73, 118-119, 128, 130,  
142, 188  
Yeltsin, Boris, 72

**Z**iellenstaat theory (cell-state theory),  
93, 96  
Zhong Ma Camp, 25  
Zhong Ma Castle, 25



